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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,628	02/11/2002	Douglas N. Kimelman	YOR920020022	4524

7590 01/23/2006

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EXAMINER	
RAMPURIA, SATISH	

ART UNIT	PAPER NUMBER
2191	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,628	KIMELMAN ET AL.	
	Examiner	Art Unit	
	Satish S. Rampuria	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/11/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the RCE received on Oct. 11, 2005.

2. Claims cancelled by the Applicant: 1-12.

3. New Claims added by the Applicant: 13-24.

4. Claims pending in the application: 13-24.

5. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/15/2005 has been entered.

Response to Arguments

6. Applicant's arguments with respect to claims have been considered but they are moot in view of new ground(s) of rejection.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 13, 14, 17, 19, 20 and 22 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "properties" in lines 8 and 10 of the new claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the similar limitation those in claim 13 with respect to "property", recited on the line 1 of the new claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "data structure", recited on the line 1 of the new claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "implementation properties", recited on the lines 8 and 10 of the new claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "data representation property", recited on the line 1 of the new claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the similar limitation to those in claim 20 with respect to "data representation property", recited on the line 1 of the new claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 13, 14, 16, 19, 20 and 22 rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,360,360 to Bates et al., (hereinafter called Bates).

Per claim 13:

Bates discloses:

- A method for minimizing total cost of interaction among at least a pair of components of a computer program, each of the components being characterized by at least one data representation property (col. 2, lines 33-36 "compiler uses a weighted cost function... determine... advantageous... based on an estimate of execution frequency for each function of the object"), the method comprising the steps of:
- a) carrying out at least a partial run of the program (col. 7, lines 14-15 "During the compilation step" also, FIG. 6 and related discussion);
- b) monitoring the at least partial run of the program to measure an amount of interaction between each pair of components (col. 7, lines 31-32 "compilation step 330 selects among class implementations by generating a weighted cost function" also, FIG. 6 and related discussion);
- c) determining a cost of interaction between each pair of interacting components (col. 7, lines 34 "determining a cost for each function of the object" also, FIG. 6 and related discussion);
- d) determining a choice of properties which minimizes total cost of the at least partial run (col. 7, lines 35-36 "determining a function call profile for each object based on estimated execution frequencies" also, FIG. 6 and related discussion);

- e) assigning the choice of the properties to the components for a subsequent at least partial run of the program (col. 7, lines 37-40 "computing a weighted cost for each class implementation based on a numerical relationship between the cost and the function call profile for an object (step 630), and selecting the class implementation that has the lowest weighted cost" also, FIG. 6 and related discussion).

Per claims 14 and 16:

The rejection of claim 13 is incorporated, and further, Bates discloses:

- the property comprising a choice of string representation of a component, the amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; the cost of interaction comprising a function of the frequency and a cost of converting any differing string representations of the pair to a common string representation (col. 8, lines 16-24 "compiler analyzes... from this analysis determines the number of times each function is issued against each object..., and the loop depth for the object calls... function call profile is then computed..., and represents an estimate of the frequency... function... executed based on the data gathered" also, See FIG. 7 and related discussion).

Claim 19 is the computer program product claim corresponding to method claim 13 and rejected under the same rational set forth in connection with the rejection of claim 13 above.

Claims 20 and 22 are the computer program product claim corresponding to method claim 14 and rejected under the same rational set forth in connection with the rejection of claim 14 above.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 15, 17, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bates in view of Admitted Prior Art.

Per claim 15:

The rejection of claim 14 is incorporated, and further, Bates does not explicitly disclose wherein at least one string represented is selected from ASCII, UNICODE, and EBCDIC.

However, Admitted Prior Art discloses in an analogous computer system wherein at least one string represented is selected from ASCII, UNICODE, and EBCDIC (Applicant's Admitted Prior Art, page 2, lines 12-13 "string representations that can be used include: UNICODE, ASCII, and EBCDIC").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of string represented is selected from ASCII, UNICODE, and EBCDIC as taught in Admitted Prior Art in corresponding to method of estimating the time for the object oriented software development as taught by Bates. The modification would be obvious because of one of ordinary skill in the art would be motivated include the choice of string representation (i.e., ASCII, UNICODE, and EBCDIC) to provide any string optimization as suggested in Admitted Prior Art (page 2, lines 23-29).

Per claim 17:

The rejection of claim 15 is incorporated, and further, Bates does not explicitly disclose wherein at least one data structure is selected from hash, tree, and compressed data structures.

However, Admitted Prior Art discloses in an analogous computer system wherein at least one data structure is selected from hash, tree, and compressed data structures (Applicant's Admitted Prior Art, page 2, lines 13-14 "data structures that can be used include: trees, compressed files and hash tables").

The feature of data structure is selected from hash, tree, and compressed data structures would be obvious for the reasons set forth in the rejection of claim 15.

Claims 21 and 23 are the computer program product claim corresponding to method claim 15 and 17 respectively, and rejected under the same rational set forth in connection with the rejection of claim 15 and 17 respectively, above.

13. Claims 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bates in view of US Patent No. 5,598,559 to Chaudhuri (hereinafter called Chaudhuri).

Per claim 18:

The rejection of claim 13 is incorporated, and further, Bates does not explicitly disclose wherein the step (d) of determining the choice is carried out by building a graph with nodes representing program components and edges that join adjacent nodes representing interaction

therebetween, each edge being characterized by a cost of each interaction, then using a graph cutting technique to find a minimum cut of the graph.

However, Chaudhuri discloses in an analogous computer system wherein the step (d) of determining the choice is carried out by building a graph with nodes representing program components and edges that join adjacent nodes representing interaction therebetween, each edge being characterized by a cost of each interaction, then using a graph cutting technique to find a minimum cut of the graph (col. 1 and 2, lines 66-67 and 1-13 "execution plan is a tree data structure... leaf-node is a scan operation... the execution of an operation represented by a given node is always preceded by the execution of the operations represented by the children of the given node... in a relational database management system a query having at least one Group-By operator is optimized... procedure includes the steps of receiving a query having a group-by operator to be optimized, generating for the query execution plans wherein internal nodes representing group-by operations are placed preceding every internal node representing a join operation, considering each such execution plan, and choosing the execution plan having the lowest estimated cost").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of characterizing the join node to minimize the cost for implementing as taught by Chaudhuri into the method of estimating the time for the object oriented software development as taught by Bates. The modification would be obvious because of one of ordinary skill in the art would be motivated to build nodes to provide more efficient execution as suggested by Chaudhuri (col. 1, lines 41-60).

Claim 24 is the computer program product claim corresponding to method claim 18 and rejected under the same rational set forth in connection with the rejection of claim 18 above.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Satish S. Rampuria** whose telephone number is **(571) 272-3732**. The examiner can normally be reached on **8:30 am to 5:00 pm** Monday to Friday except every other Friday and federal holidays. Any inquiry of a general nature or relating to the status of this application should be directed to the **TC 2100 Group receptionist: 571-272-2100**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wei Y. Zhen** can be reached on **(571) 272-3708**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit 2191
01/23/2006

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PRIMARY EXAMINER